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ABSTRACT

This paper summarizes results of a legislatively mandated study of the incidence of students with "severe and/or high cost" disabilities across California within the context of the new census-based funding approach (which distributes funds based on the overall census of school-aged children rather than a count of children receiving special education services). The study found that students with "severe and/or high cost" disabilities are not randomly distributed across school districts, thereby requiring development of an appropriate funding adjustment. A "severity service multiplier" was developed to allocate supplemental severity funding to some localities based on the characteristics and quantities of services received by their special education students. This approach was adopted by the California legislature and is now used as a severity adjustment to special education funding. The section following the introductory section considers the challenge of defining students with "severe and/or high cost" disabilities, two models for making this concept operational, analysis of the randomness of distributions of these students, and calculation of the severity service adjustment. A concluding section discusses the approach used and implications for other states. An appendix provides details on deriving special education cost estimates per student. (Contains 14 references.) (DB)

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Adjusting Special Education Aid for Severity: The Case of Census-Based Funding in California

Thomas B. Parrish, Michael Gerber, Daniel Kaleba, and Leslie Brock

July 2000

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I. Introduction

Census-based funding has been a theme in special education finance over the past 5 to 10 years. It is the approach to special education funding that was adopted under the reauthorized federal Individuals with Disabilities Education Act (IDEA) in 1997. Previously, census-based funding had been adopted in various forms by Vermont, Pennsylvania, Massachusetts, Montana, and North Dakota. In 1997, California also adopted such a model (California Assembly Bill 602).

This new model distributes funds based on the overall census of school-aged children, district enrollment, or average daily attendance (ADA), in contrast to systems that provide funding based on a count of children receiving special education services and/or a measure of the special education services actually provided. Among the rationales cited for a census-based system are that more traditional special education funding mechanisms may provide incentives for identifying students as eligible for special education, for assigning them to higher reimbursement categories of disability, and for assigning them to higher cost and often more restrictive placements.

Background

California educators and policymakers had long been concerned about the state's prior approach to funding special education—a resource-based approach that provided funding based on units of service by placement (Parrish, 1987). As a result, representatives from the California Department of Education, Department of Finance, and Office of the Legislative Analyst jointly examined the funding system, which resulted in the final report, *New Funding Model of Special Education* (California Legislative Analyst, 1995). After 2 years of studying this issue, the team concluded that a census-based formula would provide a simpler, more flexible, and equitable alternative that would reduce incentives to overidentify or place students in inappropriate special education settings.

However, the path to adopting census-based funding in California was not entirely smooth. One problem associated with census-based systems is that without some form of adjustment for variations in student need, they appear to assume an equal prevalence of special education students at comparable levels of severity. In contrast, traditional special education funding systems are based on virtually the opposite notion: that some districts and states enroll larger percentages of special education students or have a higher incidence of students with "severe" disabilities. Traditional funding systems are designed to reflect variation in the need for special education services, and accordingly face higher special education costs. Thus, it is reasoned, a district should receive differential allocations of special education funding based not just on its size, but on the size and composition of its special education population.

Research has demonstrated, however, that local identification rates and placement patterns are not always good measures of a district's true need for services because of their inherent subjectivity (Ysseldyke, et al., 1982). High identification rates, the designation of students to more "severe" categories of disability, and placing students into higher cost placements may actually reflect a

greater *need* for service, or they may simply reflect variations in local practice. A census-based approach allocates funds independent of these variables. Although the need for special education services may differ across districts of comparable size, due to the lack of objective measures of this variation, the federal government and some states have adopted a census-based approach to special education funding.

In order to account for variations in student need that lie outside district control , census-based formulas may include an adjustment to reflect a district's need for special education services. Federal IDEA funding uses poverty as the adjustment factor. That is, census-based IDEA funding is governed by a state's school-aged census count, adjusted relative to the percentage of children in poverty (70 percent census/30 percent poverty). However, some state census-based systems (e.g., Massachusetts and Pennsylvania) have no such adjustments for variations in student need. In California, concerns about the possible need for such an adjustment led to this study.

Purpose

This paper summarizes the results of a legislatively-mandated study of the incidence of students with "severe and/or high cost" disabilities across California.[1] The first objective of the study was to determine whether students with "severe and/or high cost" disabilities are evenly or unevenly distributed across the school districts of the state. If the incidence of these disabilities was found to be uneven, then the second objective was to recommend a method to adjust the state's census-based funding formula accordingly.

Findings

The study found that students with "severe and/or high cost" disabilities are *not* randomly distributed across California school districts. This finding was consistent and clear, regardless of whether the definition was based on a combination of disability conditions or on a count of students with "high cost" disabilities.

Because the distribution of students with "severe and/or high cost" disabilities was found to be non-random, the study was charged to develop or recommend an appropriate funding adjustment. A "severity service multiplier" was developed to allocate supplemental severity funding to some localities across the state based on the characteristics and quantities of services received by the special education students residing in their attendance areas. The purpose was to identify local service areas with disproportionate counts of students with "severe and/or high cost" disabilities and to provide them with supplemental special education funds. This approach was adopted by the California Legislature and is now used as a severity adjustment to special education funding.

[1] The phrase "severe and/or high cost" disabilities is placed in quotes throughout this paper to signify the class of children the research team was charged with defining. The quotation marks emphasize that there is no clear, or broadly accepted, definition of "severe and/or high cost disability." A major challenge of the research was the attempt to operationalize this concept.

Overview of Paper

The next section of this paper addresses the challenge of defining students with "severe and/or high cost" disabilities and the procedures used to determine if they are randomly distributed across the state. It then describes two different models for operationalizing this concept. One is based on categories of disability. The other is based on students with "high cost" disabilities, as identified through the development of a series of cost estimation procedures. Based on these two definitions, the randomness of the distributions of students with "severe and/or high cost" disabilities was measured. The paper concludes with a discussion and summary of findings, as well as possible implications beyond California. The appendix provides further detail regarding derivation of the California severity service adjustment.

II. Method

Defining "Severe and/or High Cost" Disabilities

A major challenge confronting this study is the ambiguity associated with alternative criteria that could be used to define "severe and/or high cost" disabilities. One criterion policymakers sometimes use in distinguishing between severe and non-severe categories is "medically" versus "non-medically" related disabilities. Further, the special education community recognizes severity as a dimension of disability, rather than a characteristic that is unambiguously tied to specific categories of disability. In addition, prior research has shown the difficulty in attempting to draw strict relationships between special education costs and categories of disability. In reporting such costs, Hartman (1983) found the variation in expenditures within categories of disability to be greater than the averages across categories. Similar findings were produced by Rossmiller, et al. (1970); Kakalik, et al. (1981); and Moore, et al. (1988). Some categories of disability that may not be generally considered "severe" may, for individual cases, prove to be "high cost." For example, based on the analyses conducted for this report, 1.4 percent of the children who had learning or speech as their primary disability were found to be "high cost" in California. Conversely, 6.25 percent of the state's children with a primary disability of deaf were not found to be "high cost."

We determined, therefore, that counts of students with "severe and/or high cost" disabilities could not be based on categories of disability alone due to the diverse mix of students and student needs. To illustrate the ambiguity of these categories, California's incidence by disability differs substantially from that found across the nation, despite relatively clear federal definitions of these disability categories (table 1).

Thus, a critical first step for this study was to derive a working definition of students with "severe and/or high cost" disabilities. Initially, we pursued analyses using separate "severe" and "high cost" definitions. In the final approach, we combined the two concepts to derive a severity service adjustment to the state's census-based special education funding formula.

Table 1 - California Cost Estimates and Incidence Rates vs. U.S. Average Estimates

Disability		Cost Estimates		Percent Special Education Enrollment	
		California[a]	Nation[b]	California	Nation
Severe[c]	Mentally Retarded	$11,164	$8,393	5.7%	11.6%
	Hard-of-Hearing	$13,128	$9,530	1.0%	1.3%
	Deaf	$20,575	***[d]	0.6%	***[d]
	Visually Impaired	$19,252	$8,982	0.7%	0.5%
	Deaf-Blind	$32,323	$33,544	<0.1%	0.0%
	Orthopedically Impaired	$17,384	$9,225	2.2%	1.2%
	Multi-Handicapped	$21,442	$12,844	1.1%	1.8%
	Autistic	$18,037	$13,902	1.0%	0.5%
	Traumatic Brain Injury	$15,141	$33,500	0.1%	0.2%
Non-severe[c]	Specific Learning Disability	$5,574	$4,865	55.7%	51.4%
	Speech or Language Impaired	$2,659	$3,286	26.3%	20.6%
	Severely Emotionally Disturbed	$17,579	$8,251	3.1%	8.6%
	Other Health Impairment	$7,510	$9,751	<0.01%	2.2%

[a] These California estimates are based on the Severe Service Model Averages.
[b] 1985-86 data from Moore et al. (1988) adjusted to 1996-97 dollars.
[c] These categories of disability are designated as "severe" and "non-severe" in California.
[d] Federal data combine the California disability categories of "deaf" and "hard-of-hearing."

Note: The major point of this table is to show differences in identification rates and costs by category of disability in California versus the nation. It is not reasonable to conclude from the two columns of cost estimates that special education expenditures overall are higher in California than in the rest of the nation given the very disparate points in time at which the data were collected. For example, the inflation index used to adjust for this time span may not fully reflect changes in special education costs during this period.

Modeling Severity Levels

The first study requirement was to determine if students with "severe and/or high cost" disabilities are evenly distributed across the state. That is, are variations in the incidence rates of students with "severe and/or high cost" disabilities across school districts greater than would be expected by chance? Only if the distribution of these students was uneven would an adjustment to the state's census-based formula be needed.

California school districts either join together to form Special Education Local Planning Areas (SELPAs) or, if a district is large enough, it may serve as its own SELPA. Because students are often transferred across districts within a SELPA for services and because the SELPA is the recipient of special education funds, the SELPA was used as the primary unit of analysis for this study.

We approached the issue of variability of incidence of students with "severe and/or high cost" disabilities by testing two different models. Initially, we grouped low incidence disability categories as a first approximation for describing a population with "severe" disabilities. Next, we developed an approach for standardizing the resources allocated by schools to individual students for the purpose of identifying and comparing the incidence levels of students with "high cost" disabilities across SELPAs.

Low Incidence Category Model

Using data collected by the state, we began with a simple model of severity using the seven categories of disability that California defines as "severe": hard-of-hearing, deaf, deaf-blind, visually impaired, orthopedically impaired, autistic, and multiply handicapped. These consist of sensory and physical disabilities that can be characterized by precise, medically oriented measurements (e.g., degree of auditory and visual acuity, range of motion, tonicity, gross developmental milestones). These disabilities are known to occur at low rates in the population. They also appear to be less ambiguously identified across regions and personnel than other categories of disability, for example, specific learning disability.

An appropriate statistical measure of the likelihood that variation in proportions identified under different definitions of severity has occurred by chance is called a chi-square test. As the difference between each SELPA's incidence rate and the state average becomes larger, the test statistic (chi-square) indicates an increasingly small likelihood that these differences have occurred by chance.

We applied the chi-square test of equal proportions to data for the 1996-1997 school year for 115 SELPAs of residence (excluding Los Angeles court and state run schools).[2] As Table 2 indicates, in

[2] We further adjusted the incidence estimate by removing nonpublic school students residing in licensed children's institutions (LCIs). These students were removed from the analysis because it is known that these placements are non-random.

1997, .54 percent of all students statewide were identified in these seven low incidence categories of disability. If variations across the 115 typical SELPAs were due to random factors alone, the observed incidence rate for this model of severity would vary only by hundredths of a percentage point. However, the actual incidence rates range from .12 percent to 1.37 percent. Thus, the SELPA with the largest proportion of students with low incidence disabilities residing within its boundaries has an incidence rate that is more than 10 times higher than the rate of the SELPA with the smallest proportion of students with low incidence disabilities (140 students out of every 10,000 versus 12 out of every 10,000).

Table 2. Summary of CHI-SQUARE Analyses Testing Significance of Differences of Incidence Rates for Children with "Severe" Disabilities (N = 115 SELPAs of Residence)[a]

Model of Severity	N	Mean %	SD	$\div^2$
"Severe" Definitions[b]	**33,820**	**.54%**	**.17%**	**4,064[c]**

[a] Excludes Los Angeles court and state schools

[b] Includes Hard-of-Hearing, Deaf, Deaf-Blind, Visually Impaired, Autistic, Multiply Handicapped, Orthopedically Impaired

[c] For samples of this size (df=114), chi-square test statistics > 166 have probabilities less than .001

This analysis clearly demonstrates that variation in the rates of low incidence disabilities across SELPAs is far greater than could be expected by chance alone. There is no reasonable doubt, therefore, that the distribution of students by "severe" categories of disability residing within SELPA boundaries does vary and that we cannot account for these variations by random influences alone.

"High Cost" Student Model

An alternative measure of the "severity" of a student's educational needs is the frequency and intensity of the services received. Therefore, we created a second "severity" model based on differential allocations of resources. For this model, we used data from the California Special Education Management Information System (CASEMIS), California Basic Education Data System (CBEDS), and other sources. These data, as well as considerable input from the project's Advisory Committee, allowed us to estimate the annual special education expenditure for each of the over 600,000 special education students in the state. (Appendix A describes how these individual cost estimates were derived.)

Standardized costs for placements and services (see appendix A, table A-1, column *e*) were used to estimate the total cost of services for each child in CASEMIS. Placements were organized around four possible options for students: Special Day Class (SDC), Resource Specialist Program (RSP), Designated Instructional Service (DIS), and Nonpublic School (NPS). For example, a student with

a Resource Specialist Program (RSP) placement receiving language and speech services resulted in a projected total cost of $5,569 (table 3). This number is the sum of the cost for RSP ($4,235) and Language and Speech ($1,334). Table 3 illustrates the individualized service cost estimates for five sample children.

Table 3. Sample of Students and Unique Service Cost Estimates

Student	Disability	Placement	Related Services	Service Cost	Total Cost
1	Speech/Language Impaired	DIS	Language & Speech	$1,334	$1,334
2	Specific Learning Disability	RSP DIS	Language & Speech	$4,235 $1,334	$5,569
3	Orthopedically Impaired	SDC DIS	Physical Therapy	$15,723 $1,096	$16,819
4	Seriously Emotionally Disturbed	SDC		$16,744	$16,744
5	Mentally Retarded	NPS		$21,705	$21,705

Once a unique cost-of-service estimate was derived for each child, we calculated the statewide average cost per special education student, and the distribution of costs, or standard deviation, around this average. Based on this standardized approach, the average cost for all special education students statewide was $6,417 with a standard deviation of $5,487. A student with a "high cost" disability was defined as one with costs in excess of the sum of these two amounts ($11,904).

It should be noted that this analysis is *not* based on reported expenditures. That is, the cost values that are assigned to each service and placement were not calculated from expenditure reports. Rather, the cost values were based on standardized costs of services and placements provided to students with "high cost" disabilities. The research team and the Advisory Committee considered it essential that any funding adjustment that might result from this analysis should not simply reward SELPAs that have spent a lot of money in the past nor encourage them to spend a lot in the future.

From these data, we characterized SELPAs according to the proportion of their students (using total average daily attendance, or ADA, as the base) with "high cost" disabilities. The SELPA with the lowest incidence of "severity," by this definition, showed .13 percent of all students as having "high cost" disabilities, while the SELPA with the greatest "severity" showed 2.46 percent of all students as having "high cost" disabilities. Again, the highest and lowest cost SELPAs differed by a factor greater than 10. When subjected to the same type of chi-square analysis described above, the results were substantially the same: far less than one in a thousand probability that this variability could be expected by chance alone (see table 4).

Table 4. Summary of CHI-SQUARE Analyses Testing Significance of Differences of Incidence Rates for Students with "High Cost" Disabilities

Model of Severity	N	Mean %	SD	$\div^2$
"High Cost" (as a % of ADA)	66,304	1.12%	.39%	7,263*

* For samples of this size (df=114), chi-square test statistics > 166 have probabilities less than .001

Rank Order Differences Across SELPAs

Given that variability in the incidence of severity exceeded chance for both the "disability category- based" and the "high cost" models, the next task was to analyze whether both models would identify the *same* SELPAs as having a greater or lesser incidence of students with "severe" disabilities. We posed this problem as follows. If we rank SELPAs according to the proportion of students with "severe" disabilities using two different ranking criteria—one based on category of disability and the other based on the percentage of students with "high cost" disabilities—will we produce the same rank order? That is, will a SELPA's rank based on proportion of students with "high cost" disabilities predict its rank based on the proportion of students with low incidence disabilities? If so, the factors contributing to having students with higher cost disabilities are related to the factors contributing to having students with disabilities in certain low incidence categories.

Rank-order correlation analyses show SELPA rank based on the percentage of low incidence categories of disability to be moderately related (r = .71) to rank based on the percentage of special education students with "high cost" disabilities. This correlation means that over half of the observed variability in rank position based on cost can be accounted for by rank position based on low incidence categories of disability. Overall, however, this finding re-emphasizes the interpretation that important factors *other than low incidence categories of disability* operate in SELPAs to produce special education students with higher cost disabilities.

In sum, our analyses show that however we define incidence of severity—either on the basis of low incidence categories of disability or measures of "high cost"—the observed variability across California's 115 SELPAs is much greater than would be expected by chance alone.

Calculating the Severity Service Adjustment

Upon determining that the distribution of students with "severe and/or high cost" disabilities is not random in California, we were charged with developing an appropriate adjustment to the state's new census-based funding formula. Based largely on the program- and service-based cost model described above, and on iterative analyses, we recommended an approach based on the relative percentage of special education students receiving "high cost" services in each SELPA in relation to the rest of the state.

The resulting severity service adjustment was calculated and applied through a complex set of procedures.[3] In short, the procedures were designed to identify districts enrolling disproportionate numbers of students with "high cost" disabilities and to produce an estimate of these excess costs. Excess costs, due to unusually high enrollments of students with "high cost" disabilities, would be at least partially offset by the supplemental funding received through a severity service adjustment.

[3] These procedures are described in detail in the full report, *Special Education: Study of Incidence of Disabilities* (Parrish, et al., 1998).

III. Conclusion

This paper describes the approach taken by the nation's largest state in addressing the potentially uneven distribution of students with "severe and/or high cost" disabilities, to be used in conjunction with a census-based funding system. A severity-based funding supplement was created based on an independent assessment of the characteristics of the students served and the programs provided by SELPAs throughout the state. Based on this assessment, 35 of California's 115 SELPAs were awarded "severity service" funding at an estimated first-year cost to the state of $57.5 million. This constituted a 1.5 percent increase in current state special education aid. The amount of the supplement ranged from $14.5 million in Los Angeles Unified School District, which serves as its own SELPA, to about $10,000 in one of the smaller SELPAs in the state. Because the cut-off point for a "high cost" student and the percentage of supplemental cost the state would fund beyond this point are policy decisions, the statewide cost of such a program could be scaled up or down.

The California Department of Finance, one of the study's sponsors, was initially concerned that the severity adjustment appeared to be largely based on prior district spending—that is, an adjustment based on services provided would simply reward those SELPAs most able to spend. Such concerns appear reasonable given the reliance of this approach on the numbers of students receiving high levels of service. However, it is important to note that a number of standardization procedures were built into the analysis. For example, the approach was based on the mix of services provided to students with the most "severe" disabilities and not on actual expenditures. As it turned out, higher poverty SELPAs were *more* likely to qualify for supplemental severity aid, and *no relationship* between overall levels of expenditure per student and the award of this supplemental aid was found.

This approach and the resulting recommended funding amounts were adopted by the California Legislature in 1998. Full funding is being phased in over time. In 2003, the nature and magnitude of this supplement will once again be reviewed.

Discussion of Approach

This study demonstrates several ways to systematically think about and test for variations in the numbers of students with "severe and/or high cost" disabilities across school districts. The first approach to defining this population was based on severe/low incidence categories of disability, and the second, on costing out the services received by individual students largely irrespective of their disability category. Using both of these approaches, we found variations well beyond what would be expected from chance alone. This analytical approach may determine whether incidence of disability is randomly distributed across school districts to the extent that it can be addressed through extant data.

It is important to note, however, that both of the indicators used in this study were, like special education identification rates, under a degree of district control. That is, districts have some discretionary control, or judgment, in associating students with particular disability categories (high or low incidence) and in assigning students a particular array of services (high or low cost).

One approach, clearly *outside* district control, is that taken by the federal government in adjusting special education funding in relation to state rates of poverty. *The Nineteenth Annual Report to Congress on the Implementation of the IDEA* describes the positive association between the need for special education services and poverty (U.S. Department of Education, 1997, pp. I-19). The same rationale can be used to support district-level adjustments to census-based amounts based on district poverty rates.

On the other hand, McLaughlin and Owings (1993) found no significant empirical relationship between poverty and special education identification rates over three separate years. For the current study, the relationship between counts of students with "severe and/or high cost" disabilities and district-level rates of poverty in California were found to be insignificant. This weak relationship between poverty and variation in the two measures of severity described above may be why California did not choose poverty as a possible adjustment factor for the state's census-based special education funding. This is not to say, however, that poverty adjustments to census-based funding are inappropriate. This study relied on the district-level indicators of variations in student need that were available for California school districts. If the kinds of data used in the federal analysis, cited above, could have been obtained and analyzed on a district-by-district basis in California, the argument for a poverty adjustment might have prevailed.

Another approach to assessing variation in the distribution of students with "severe and/or high cost" disabilities is to employ independent review teams to assess student needs across districts. Although we know of no states using review teams to make independent assessments of students, they are used for this purpose in some regions of England. Other English regions use poverty as an adjustment factor (Bowers and Parrish, 2000). If such an independent review team were employed, the federal findings about the relationship between poverty and the need for special education at the district level might be further confirmed. On the other hand, other factors are also likely to affect the distribution of students with "severe and/or high cost" disabilities—for example, a reputation for a high-quality special education program and proximity to other types of related services, such as a university or some other facility with highly specialized programs and services for children with disabilities.

Implications for Other States

The need for the kind of severity adjustment described in this report is relevant to all jurisdictions that have, or are considering, census-based approaches to special education funding. As mentioned, the federal equivalent to the adjustment adopted by California is based on student poverty. Under IDEA '97, census-based funding amounts are adjusted positively in relation to the state poverty rate, in relation to the national average.

The type of adjustment a particular state adopts is likely to depend on the state's history of special education funding and available data. For example, one reason California was ready to adopt this severity adjustment is because the argument in favor of census-based funding in the state, although hotly contested, had already been decided. The major remaining issue to resolve was the underlying assumption of a random distribution of severity. The state was ready to test this assumption and to adopt a policy to account for variations in severity, if found to exist. Second, it was possible to conduct the kind of analyses described in this report because of California's student-level database (CASEMIS). Without such information, it would not have been possible to take this exact approach. However, other states may be able to address similar issues in a somewhat different way. A careful analysis for each state of the exact questions at hand and the data available to address them would be required.

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Appendix A

Deriving Special Education Cost Estimates Per Student

To derive special education cost estimates per student, we adopted a uniform set of procedures for measuring variations in services received by students across the state. A model was constructed to compare the placement and related services received by students to the special education personnel providing these services. This analysis relies primarily on data from the California Special Education Management Information System (CASEMIS) and the Special Education Personnel Data Report. It also relies on professional judgment, as provided by the project advisory committee, and combines disability category and cost-based definitions of severity.

For each special education student in California, CASEMIS shows disability, placement, related services received, SELPA of residence, and a host of demographic information such as age, sex, race, and residential status. In addition, the Special Education Personnel Data Report provides information on the numbers of teachers, administrators, and other certificated staff providing special education services across the state. The state's J-50 data supplement this with selected financial information and the distribution of aides.

Using CASEMIS and the state's personnel data report for standardized counts of special education personnel by job category, we assigned quantities of teacher and aide time to individual students based on their primary special education placement and the related services they received. For example, Language and Speech is one of the related services listed on CASEMIS, while the Personnel Data Report provides a count of Language and Speech Specialists statewide. By generating a count of the total number of students receiving speech therapy statewide and comparing this to the total number of language and speech specialists across the state, we derived a ratio of those receiving each service to those providing it. A single statewide standardized teacher salary and benefit amount was then divided by this ratio. This value was the professional salary and benefits cost for one student receiving speech therapy. This approach was applied for all instructional services and placements in CASEMIS. The results of this program and service cost analysis are summarized in table A-1, column C.

Table A-1. Estimated State Average Unit Cost by Placement and Related Service

Placement (A)	Category (B)	Salary with Benefits (C)	Instructional Cost (D)	Cost Including Administration (E)	Total Number of Students (F)	Total Number of Staff (G)
Special Day Class:	Mentally Retarded	$6,345	$6,476	$9,355	31,344	5,699
	Hard-of-Hearing	$9,971	$10,176	$14,701	3,312	946
	Deaf	$11,633	$11,872	$17,151	3,118	1,039
	Speech/Language Impaired	$6,345	$6,476	$9,355	13,903	2,528
	Visually Impaired	$9,971	$10,176	$14,701	2,684	767
	Seriously Emotionally Disturbed	$11,357	$11,590	$16,744	9,038	3,228
	Orthopedically Impaired	$10,664	$10,883	$15,723	9,542	3,067
	Other Health Impairment	$6,345	$6,476	$9,355	4,376	796
	Specific Learning Disability	$5,008	$5,111	$7,384	89,590	11,199
	Deaf-Blind	$17,450	$17,808	$25,272	152	76
	Multihandicapped	$13,250	$13,522	$19,535	5,582	2,326
	Autism	$11,357	$11,590	$16,744	5,167	1,845
	Traumatic Brain Injury	$13,250	$13,522	$19,535	480	200
Resource Specialist Program:		$2,873	$2,931	$4,235	273,468	22,096
Related Services:	Language & Speech	$905	$923	$1,334	248,811	4,466
	Home & Hospital	$7,813	$7,973	$11,519	2,686	416
	Adapted Physical Education	$927	$946	$1,367	47,969	882
	Audiological Services	$498	$509	$735	5,955	59
	Individual Counseling	$905	$923	$1,334	25,181	411
	Group Counseling	$905	$923	$1,334	25,181	411
	Guidance Services	$905	$923	$1,334	25,181	411
	Occupational Therapy	$1,246	$1,272	$1,837	6,237	154
	Physical Therapy	$744	$759	$1,096	1,792	26
	Orientation & Mobility	$3,459	$3,530	$5,099	1,764	121
	Parent Counseling	$905	$923	$1,334	25,181	411
	Social Work Services	$905	$923	$1,334	25,181	411
	Vocational Education Training	$1,096	$1,119	$1,616	12,235	266
	Recreation Services	$927	$946	$1,367	47,969	882
	Vision Services	$5,774	$5,892	$8,512	13,816	1,583
	Specialized Driver Training	$5,774	$5,892	$8,512	13,816	1,583
	Psychological Services	$905	$923	$1,334	25,181	411

Table A-1. Estimated State Average Unit Cost by Placement and Related Service *(continued)*

Placement (A)	Category (B)	Salary with Benefits (C)	Instructional Cost (D)	Cost Including Administration (E)	Total Number of Students (F)	Total Number of Staff (G)
Related Services (continued)	Specialized Services Low Incidence Disabilities	$5,774	$5,892	$8,512	13,816	1,583
	Health/Nursing-Specialized Physical Health Care	$5,774	$5,892	$8,512	13,816	1,583
	Health/Nursing-Other Services	$4,730	$4,827	$6,974	8,575	2,091
	Interpreter Services	$4,730	$4,827	$6,974	8,575	2,091
	Education Technology Services	$4,730	$4,827	$6,974	8,575	2,091
	Behavior Management Services	$4,730	$4,827	$6,974	8,575	2,091
	Assistive Services	$4,730	$4,827	$6,974	8,575	2,091
	Braille Transcription	$4,730	$4,827	$6,974	8,575	2,091
	Reader Services	$4,730	$4,827	$6,974	8,575	2,091
	Note Taking Services	$4,730	$4,827	$6,974	8,575	2,091
	Itinerant Services	$5,774	$5,892	$8,512	13,816	1,583
	Adult Transition Services	$1,379	$1,407	$2,032	1,318	36
	Vocational Counseling	$1,379	$1,407	$2,032	1,318	36
	Deaf/Hard-of-Hearing Services	$5,774	$5,892	$8,512	13,816	1,583
Non-public (Private Special Education) School:	Group A	—	—	$21,705	7,678	—
	Group B & C	—	—	$23,130	4,692	—

Table A-1 organizes these services around the four major categories of placement options for students with disabilities in California: Special Day Class (SDC), Resource Specialist Program (RSP), Designated Instructional Services (DIS), and Nonpublic School Placements (NPS). SDCs are self-contained classes for special education students. RSP services are provided by resource teachers, who may be serving in a consultation mode with general education teachers and/or pulling students out of the general education class for resource services. NPS are private schools exclusively serving special education students.

In addition to calculating standardized instructional costs for each service and placement, multipliers were uniformly applied to add nonpersonnel and administrative costs. The resulting nonpersonnel cost estimates (e.g., for supplies, materials and equipment at the classroom level), were added to the salary and benefit costs (in column C) to equal the full instructional cost (column A). Program and district administration costs (column E) were then added to the instructional cost (column A), based on a standard multiplier to provide an estimate of the overall cost for each of the listed special education placements and services. These multipliers, derived from prior research (Chambers et al., 1995; Parrish, 1987) conducted in the state, were uniformly

applied across all students and SELPAs. Consistent with the standardized approach, students receiving speech in rural SELPAs would show the same standardized service cost estimate as that applied to students in urban SELPAs. Also, because this information was not available from CASEMIS, it was not possible to differentiate the cost of a single service, for example speech, based on its intensity or duration. The final amounts used in the cost estimation model for each placement and service are shown in column E of table A-1.

To develop a standardized cost for placement in private special education schools in California, (NPS) students were differentiated into Groups A, B, and C. Group A students are NPS students residing within the district. Group B students are licensed children's institute (LCI) students (in foster or group homes) whose parents live in the same district in which the LCI is located. Group C is composed of LCI students who are originally from a different district and are placed in a district of service by an outside agency (i.e., not the school district). Average costs were calculated by summing NPS expenses for Group A, B, and C students, and then dividing them by the respective ADA for each cohort of students. Standardized cost estimates for each of the NPS cohorts are shown at the end of table A-1.

The SDC placement costs are different from the other three placement options because the disability category is also considered in the cost estimate. For example, the SDC placement for a child with the disability classification "Mentally Retarded" is $6,345, while the SDC placement for a child with the disability classification "Deaf" is almost twice as large, at $11,633. These differences are due to estimated differences in the ratio of students to teachers and aides in each of these respective special day classes. In our example, deaf students have a smaller ratio of students to teachers and aides than students with mental retardation, calculated to best reflect the actual class sizes of the various SDC placements.

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